QUANTUM-AI
THE SCHOOL OF DATA AND AI

MySQL Database Administration & Development

Professional Certification & Industry-Oriented Curriculum

- Program Level: Beginner to Advanced
- Duration: 8–10 Weeks
- Mode: Practical Training + Live Projects
- Prerequisites: Basic Computer Knowledge

Program Objectives

By the end of this program, participants will be able to:

- Design and manage relational databases efficiently
- Write basic to advanced SQL queries
- Implement data integrity using constraints
- Perform database backup and recovery
- Optimize database performance
- Handle real-world database administration tasks



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WHY CHOOSE QUANTUM-AI ?

Industry-focused curriculum designed by database professionals with real-world experience.
Hands-on training with live projects, practical labs, and career-oriented guidance.

About the Program

This comprehensive MySQL Database Administration & Development program covers everything from database fundamentals to advanced administration techniques.
Students will gain practical expertise in SQL queries, database design, performance tuning, security management, and backup strategies.
The course combines theoretical concepts with real-time projects to ensure strong hands-on learning.
By the end of the program, participants will be fully prepared to manage and optimize real-world MySQL database systems.



Detailed Curriculum Structure:

Module 1: Database Fundamentals

Topics Covered:

- Introduction to Databases
- RDBMS Concepts
- Database vs DBMS
- Client-Server Architecture
- Installation of MySQL (Windows/Linux)
- Introduction to MySQL Workbench

Practical:

- Install MySQL Server
- Create the First Database

Module 3: Advanced SQL Queries

Topics Covered:

- WHERE Clause
- ORDER BY
- GROUP BY
- HAVING Clause
- Joins (INNER, LEFT, RIGHT)
- Subqueries
- UNION
- Aggregate Functions

Practical:

- Multi-table Join Queries
- Sales Report Generation

Module 4: Indexing & Performance Optimization

Topics Covered:

- Introduction to Indexes
- Types of Indexes
- Query Optimization
- EXPLAIN Statement
- Performance Tuning Basics

Module 5: Stored Procedures & Triggers

Topics Covered:

- Creating Stored Procedures
- Parameters & Variables
- Conditional Statements
- Loops
- Creating Triggers
- Events

Practical:

- Salary Calculation Procedure
- Audit Log Trigger

Module 6: User & Security Management

Topics Covered:

- Creating Users
- GRANT & REVOKE Privileges
- Roles
- Password Management
- Database Security Best Practices

Module 7: Backup & Recovery

Topics Covered:

- Logical Backup (mysqldump)
- Physical Backup Concepts
- Database Restore
- Replication Basics

Practical:

- Full Backup & Restore
- Simulated Data Recovery

Module 8: Database Design & Normalization

Topics Covered:

- ER Diagram
- Primary & Foreign Key Relationships
- Normalization (1NF, 2NF, 3NF)
- Denormalization Concepts

Practical:

- Design an E-Commerce Database Schema



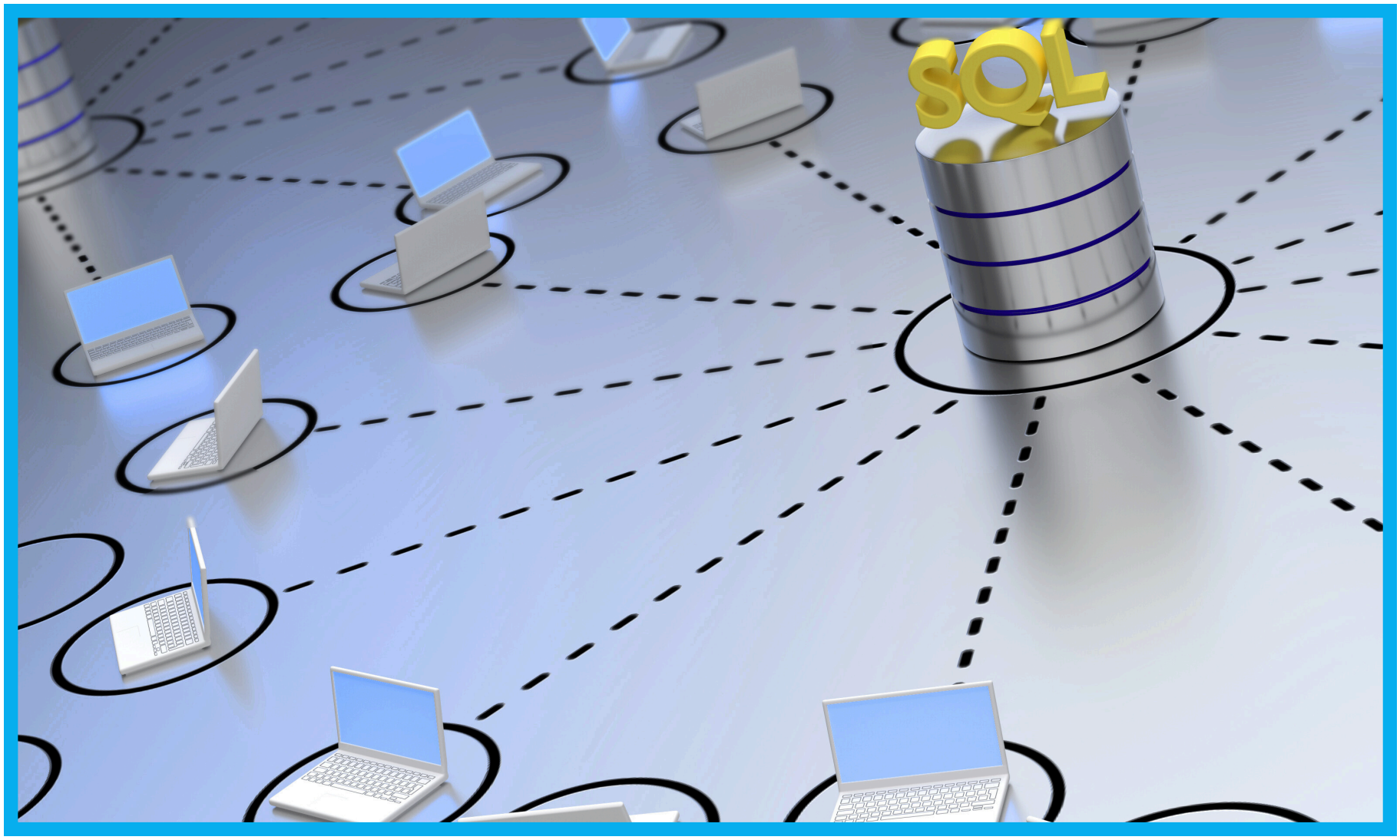
Module 9: MySQL Administration

Topics Covered:

- Server Configuration
- Configuration Files
- Logs
- Performance Monitoring
- Storage Engines (InnoDB, MyISAM)

Module 10: Real-Time Projects

- Library Management Database
- E-Commerce Database Design
- HR Management System
- Inventory Tracking System



Get in Touch

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